Use of E-Learning Platforms in the Training of Personnel in the Air Transport Industry

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Abstract: The use of e-learning platforms for staff training in the services of the air transport industry is a topic of interest today, both for air transport service providers and for training providers in the field. With the massive expansion and development of technology in the world, the study is beginning to develop quickly with steps from the classic model, on paper, to an online model, more efficient. E-learning nowadays is a significant component of education in the case of high schools or faculties. In this study, I intend to analyze how this phenomenon is applied in the air transport industry, a field as dynamic as the educational process. The aim was to investigate the perception of persons who benefited from the courses of aviation schools, by conducting a quantitative research, in which the questionnaire was used as a research tool. Among the research objectives are: highlighting new learning methods in the aviation industry, how to carry out continuous training, as well as highlighting the benefits of learning through simulation. Besides, another objective worth mentioning is the identification of the attitude of the trainees in the training schools in the field of aviation and air transport services, about the use of e-learning platforms in the teaching process, both in the institutional environment and looking for information individually. Also, I sought to highlight the advantages and disadvantages of using e-learning tools and mobile learning applications, even in the information-learning process. I believe that the credibility of the source is essential in the process of initial training and continuous education of the students from the schools of the aeronautical industry. The questionnaire used as the primary tool for the research consisted of more than 21 questions and it was applied to a sample of 52 respondents. Four questions were open and a content analysis was performed on them.

Key-Words: air transport services; mobile learning, e-learning;

1 Introduction

In the aviation industry 120,000 flights take place every day, thus facilitating the transport of 14 million people from different locations on Earth (Source: https://aviationbenefits.org/). It all began in 1903 when the Wright brothers made the first powered and controlled flight, phenomenon that never ceased to amaze until today. Since then, it was laid the foundation for the first institutions to form the first skilled pilots, laying the foundations of the workout aviation, which remains to this day the initial stage of the formation of a pilot.

Courses conducted at that time assumed theoretical and practical work training aircraft made apprenticeships (the process by which pilots experienced guides pilots to early career) until the students acquire essential knowledge.

The second major step in aviation education took place between 1929 and 1979 and defined a new concept for its time - the simulation. Through simulation, profile schools did not depend on weather conditions to carry out training. Thus training costs have been reduced considerably, making it possible to prepare more students than before. Flight simulators were initially developed to test instruments and systems available on board of an aircraft. It evolved gradually and today it incorporates the latest visual technology that reproduces real flight conditions. Created initially for reproduction systems in the aircraft, simulators have contributed to technological advances. Through planes were improved aircraft component elements, such as navigation system, radar system and various sensors.

The third stage in the training of aviation started in the early 80s and runs until today. This stage aims to ensure the safety of the aircraft using all hardware resources. The software to obtain the simulation stage called CRM (Crew Resource Management) was complicated and it was improved because until then it was the only replacement device unanimously agreed to follow the space of knowledge, meteorological elements and

in-flight aircraft operation. Although the new changes were perceived as complicated and challenging to follow, the attitudes changed, and annual CRM training, for civilian and military pilots became mandatory (Reigeluth, 1994). E-learning systems were fully integrated into training programs in the airline industry. The developments in e-learning programs include:

- *Flight simulators for pilots and flight crews*. They contribute to cost efficiency by applying theoretical knowledge and simulating actual flight conditions;
- *Based on training scenarios*. It can be used to acquire the necessary skills to ensure the actual operation or maintenance;
- *Training for the efficient operation of systems (EMS)*. Help maintain the current level of all information for safe operation and corresponding decision-making (webanywhere, 2012).

In line with the views of authors in the field, the current learning methods aimed aviation, predominantly skilled personnel selection corresponding air transport industry. The training focuses predilection on following procedures at the expense of making procedural decisions in crises.

Fig no 1. Adaptive learning model

Source: https://www.dreambox.com/adaptive-learning
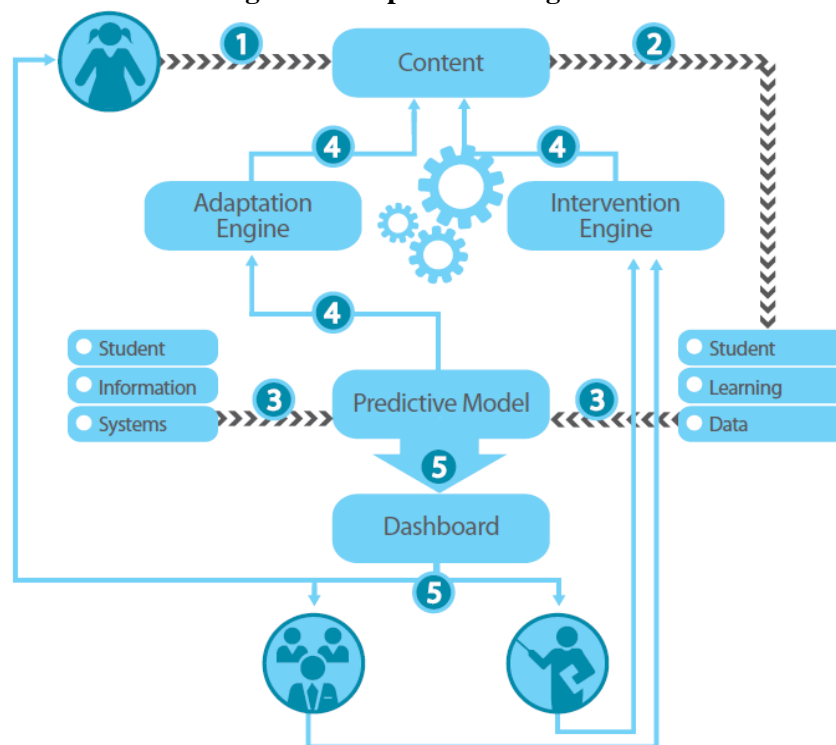
The volume reached by the air transport world has come to overcome any Outstanding and this has contributed to the use of advanced technology in the cockpit but has forced airlines to use the services of pilots for low-skilled, who often end complete their training during racing.

In order to produce faster pilots, the industry can not provide less training but is forced to rethink fundamentally how education and training while pursuing efficiency.

2 Comparative analysis of the advantages and disadvantages of e-learning system in aviation

Preparation based performance creates an opportunity for aviation and trainers are looking for new ways to organize and carry out training. Based e-learning methods include adaptive instruction and practice can be continually improved, contributing to improving the skills of each pilot. Thus, to a level that can overcome practical actions. Current methods of learning (e-learning), are deemed feasible, especially in the individual training of pilots.

The advantages of e-learning:
- Cost-effectiveness;
- Courses can take place anywhere on Earth;
- Available 24/7;
- Courses can be standardized (common database by accessing instructors);
- You can use exercises attractive;
- Standardized software (training facilitate same);
- Activities are executed based on augmented reality;
- Activities receive feedback in a short time;
- The performances of students are tracked in real-time (Bernard et al., 2004).

Also, according to a study conducted in 2019 (2020 Online Education Trends Report) the most common concerns about online versus on-campus learning options according to participants in online courses are the perception of their online degree by prospective employers. However, most of them, according to the analysis, have no concerns about education through e-learning platforms.

Fig no 2. Concerns about choosing online education in 2019
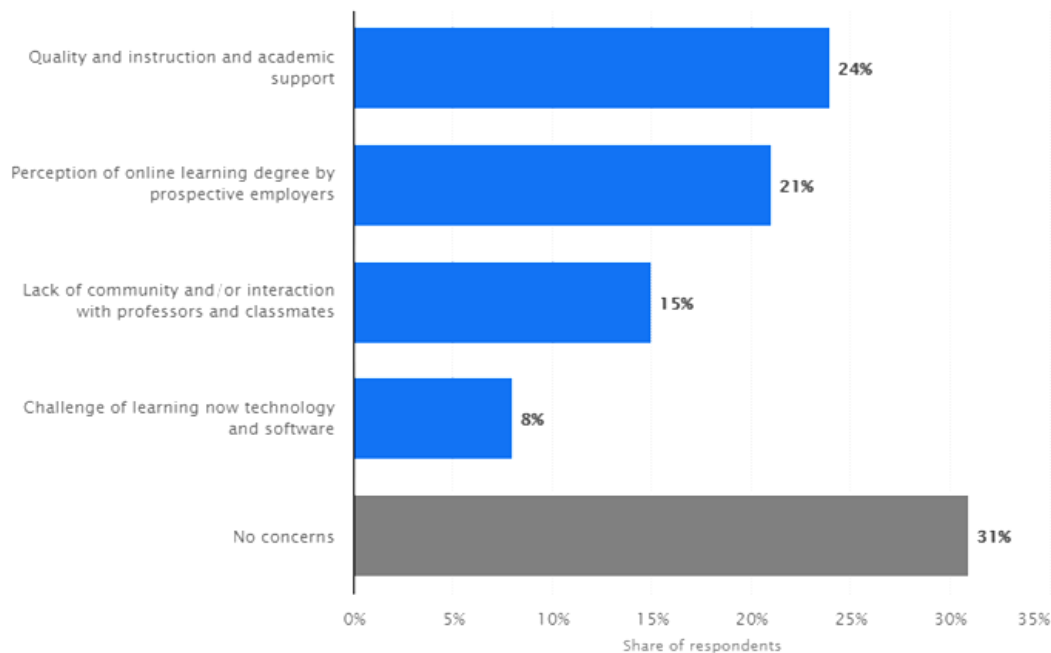
Source: 2020 Online Education Trends Report, page 13

The number of advantages of the e-learning system and the support is an excellent advance that it has gained compared to traditional learning systems, while it aims to reduce the training time due to the needs mentioned above. Although the number of benefits that the e-learning system is considerable, it should be noted that each student who uses this system must have a substantial volume of knowledge and design principles and specially adapted to the needs of the individual and the company.

By analyzing the financial benefits, the company can analyze factors such as productivity, safety, turnover and individual passenger satisfaction. Compared to the elements discussed above, the amount of preparation can be calculated. It is also possible to analyze pilots (in terms of performance) who have followed various training programs, which aim to calculate individual performance (flight times, flights made without pilot error, surveys among passengers). The evaluation of the return on investment can be analyzed using the following formula:

ROI (%) = (Benefits-Costs) x 100 / Costs

The airlines of the specialized departments regularly analyze the costs of the training, always looking for efficiency, while eliminating the aeronautical deficiencies.

Learning programs have been significantly developed in recent years. Researchers in the field have concluded that the effectiveness of e-learning, benchmarking with conventional analyzed is very high compared to the efficiency obtained in the classroom. Even so, there are several e-learning based courses whose performance is low. These findings illustrate that not all e-learning is useful; they vary depending on the area of the curriculum followed and how it was a structured training program. However, there are several disadvantages associated with e-learning, such as:

- Creation and implementation of courses can cost more than projected savings;
- Success depends on a knowledge platform for learners to use computer and platforms;
- Students must be motivated and self-taught;
- Instructors and students lose direct contact;
- Courses and materials classically transmitted cannot be fully used in the e-learning;

Although courses e-learning has been initially designed to save money in training costs as they can get can be very large, having considered the development of the course and the possibility that it will not achieve its purpose it was created. Companies pursuing reduced training costs develop training programs without knowing in detail the elements of aviation, come to establish training programs ineffective. Products used to convert traditional e-learning courses often promise users a course ready for deployment in a few weeks. This type of software will only convert PowerPoint slides into a web-based training (WBT) program. The best result that can reach a level of knowledge is addressed to the students in the class. It is also possible that students learn less because the materials were not designed to teach computer delivery. The risk exposure of learners to a training program for poor and their first reaction will follow boycott training program (Piskurich, 2006).

Systemic e-learning is revolutionizing the interaction of instructors and students. Analyzing the size of a large group, that e-learning system facilitates, reduce interaction with the instructor who has no way to determine whether all group members pursue their attention is distracted or material, to test or final exam. But electronic learning interactivity allows instructors to monitor students whose results are poor. When properly implemented, e-learning does not reinvent the wheel, but a redraw. Although e-learning has its place in the third generation of aviation training is anticipated transition to training methods customized using the training program of each pilot.

As for flight simulators not totally replaced preparing learners on aircraft, the e-learning system cannot replace traditional learning systems. E-learning system does not eliminate the need for the use of instructors with a large amount of knowledge and experience. Even if technology facilitates moving action within aviation will always need competent instructors (Kearns, 2016).

2.1. Methods of transmitting information by e-learning

E-learning system facilitates use three primary methods of transmitting information: synchronous method, asynchronous method and mixed-method.

The synchronous method involves connecting instructors and students in a virtual classroom simultaneously from different locations. This e-learning method is based on the idea of forming a community using forms of CMC live via a webcam, a headset instant messaging.

The asynchronous method involves the use of an independent system for each student. As for synchronous method can be used CMC platforms, but it is used as a mailing list where students write messages that are subsequently analyzed by an instructor. In this case, students have more time to think of responses; thus, their quality is higher. Also, they train at their own pace, contributing to increased motivation. Asynchronous learning, self-learning allows the organization to provide a few or vast racing significant cost differences.

Mixed-method facilitates the use of two types of learning to achieve expected outcomes. The very basic training in aviation combines both school education, and classes of aircraft can be considered using mixed methods. Some universities have recently introduced aircraft blended learning courses. These combined courses are taught in a traditional, with some students staying F2F with their instructor. By using live cameras and microphones installed in class, the course is broadcast live online. Through a portal, students in remote locations connect synchronous classroom. In this way, e-learning students can observe discussions between the instructor and classmates. Students connect remotely to the classroom whenever they need, and when they need resources to supplement what they have learned in class. An online class can support and forums where students can communicate with each other to share different ideas or resources. Instructors can generate reports

that show the time each student has spent in the classroom online and available resources—this e-learning application called LMS (Davidson-Shivers, 2000).

2.2 E-learning system questionnaire

The questionnaire consists of 21 questions, of which two first filter questions through which only the appropriate respondents were selected for the study, classification and identification of six questions and 13 questions to highlight the research objectives. It was applied to 52 respondents operating in the air transport industry. The interviewed personnel come from both the civil aviation industry and the military air transport, composing instructors, pilots and technical staff and shareholders of the air transport companies. The research took place in Romania, in Bucharest and Constanta.

1.   What is the method of learning that you consider appropriate for you?

Fig no 3. Learning methods appreciate by participants
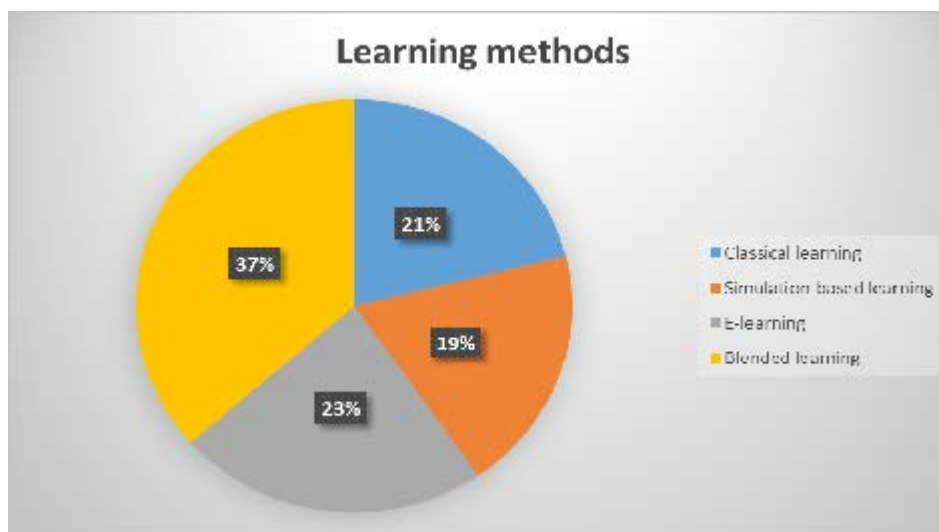
Respondents felt that the best way of learning incorporates the advantages of classical and modern. This method contributes decisively to retain information that they transmit instructors, bringing together transmission more classic, modern and based on simulation. Also, e-learning is in the second position in respondents' preferences. This may be related to the fact that in Romania, the implementation of modern learning occurred relatively recently.

2.   How effective do you think is the application of e-learning in the airline industry?

Most respondents appreciated the fact that an educational profile, military and civilian, brought Track the educational method, arguing their responses via these platforms advantages they offer immediate availability of databases and interactivity offered. The activities through e-learning systems have facilitated apply knowledge acquired in a much shorter time, primarily through simulation. In aviation, standardization is vital, and this is another element that respondents have noted, considering that the training programs organized by common custom, instructors, pilots and technical staff will acquire interdependent skills.

3.   To what extent the e-learning can replace traditional teaching-learning systems?

Although previous responses supported and listed the benefits of this system, most respondents disagreed with the idea of interacting with a full waiver statement. Arguments that interviewed staff has supported the general opinion tracked the experience that instructors are acquired along career and reproduction is severe, the interaction between students have both the group and the contact with the instructor and depersonalization educational process. Also, instructors surveyed supported the remarks by other interviewees and additions such as students are not always the same level.

3 Conclusions

Through this article, I set out to evaluate the elements that contribute to the use of electronic learning in air transport, in the preparation stages of pilots and related personnel. As this area is fundamentally different, it requires personalization of learning methods so that all staff benefit from new technologies. This article aims to provide relevant information for professionals in the field, both as instructors and students, by theorizing the design and application of instruction in e-learning in practice.

There are distinct benefits, as pilots also benefit from staff support through e-learning, by improving existing issues such as ambiguity, feedback and some training issues. Also, in this field, investors choose to invest in this type of training because the training period is financially efficient.

Even if through technology aims to overcome core values system of the modern e-learning has progressed to the point where there is a solid base of principles and practices. Features various technologies and delivery methods (synchronous, asynchronous, blended learning) electronic learning will contribute to the continued growth of our ability to meet the targets learning training programs for pilots and technical staff. Also, this article has highlighted the idea that modern teaching methods be used together with conventional methods and simulation-based activities in order to obtain good results.

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